Profile Of The Organic Chemical Industry 2nd Edition

Industrial Organic Chemicals The American Synthetic Organic Chemicals Industry **Industrial Organic Chemistry** Organic Building Blocks of the Chemical Industry *Handbook of Industrial Chemistry Industrial Organic Chemicals in Perspective, Raw Materials and Manufacture* **Industrial Organic Chemistry Survey of Industrial Chemistry** Environmental Inorganic Chemistry for Engineers *The American Synthetic Organic Chemicals Industry Chemistry and the Chemical Industry* **Green Organic Chemistry and its Interdisciplinary Applications** *Advanced Practical Organic Chemistry, Second Edition* Biotechnology in the Chemical Industry Industrial Environmental Performance Metrics **Organic Chemistry in Colour** Industrial Organic Chemicals **Separation Technologies for the Industries of the Future Nanofiltration, 2 Volume Set Crystallization of Organic Compounds Handbook of Industrial Chemistry and Biotechnology** *Electrochemical Reactions and Mechanisms in Organic Chemistry Survey of Industrial Chemistry* **Industrial Organic Chemicals** *Green Organic Chemistry in Lecture and Laboratory Air Pollution* **Organic Chemicals From Biomass** *A History of the International Chemical Industry* Organic Chemicals in the Environment Iodine Catalysis in Organic Synthesis **Efficiency and Sustainability in the Energy and Chemical Industries Purification of Laboratory Chemicals Practical Process Research and Development – A guide for Organic Chemists Handbook of Physical Properties of Organic Chemicals Riegel's Handbook of Industrial Chemistry** *Organic Chemistry of Sulfur* **Metal-catalysis in Industrial Organic Processes** Organometallics as Catalysts in the Fine Chemical Industry *Metal-Organic Frameworks for Chemical Reactions* The Organic Chemistry of Drug Design and Drug Action

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Efficiency and Sustainability in the Energy and Chemical Industries Apr 03 2020 Translating fundamental principles of irreversible thermodynamics into day-to-day engineering concepts, this reference provides the tools to accurately measure process efficiency and sustainability in the power and chemical industries-helping engineers to recognize why losses occur and how they can be reduced utilizing familiar thermodynamic principles. Compares the present industrial society with an emerging metabolic society in which mass production and consumption are in closer harmony with the natural environment. The first book to utilize classic thermodynamic principles for clear understanding, analysis, and optimization of work flows, environmental resources, and driving forces in the chemical and power industries.

Handbook of Physical Properties of Organic Chemicals Jan 01 2020 If your work requires that you understand environmentally important properties of chemicals, then this databook will make your job easier. By providing you with easily accessed information on the structure and physical/chemical properties of more than 13,000 environmentally important chemicals, Handbook of Physical Properties of Organic Chemicals simplifies the task of locating and analyzing common and obscure compounds alike. One best experimental value is selected or an estimated value provided for: Melting point Boiling point Water solubility Octanol/water partition coefficient (log) Vapor pressure Disassociation constant Henry's law constant. These physical properties were identified from Syracuse Research Corporation's Environmental Fate Database, particularly from the DATALOG and CHEMFATE files.

Industrial Organic Chemicals Nov 03 2022 Publisher Description

Survey of Industrial Chemistry Mar 27 2022 Survey of Industrial Chemistry arose from a need for a basic text dealing with industrial chemistry for use in a one semester, three-credit senior level course taught at the University of Wisconsin-Eau Claire. This edition covers all important areas of the chemical industry, yet it is reasonable that it can be covered in 40 hours of lecture. Also an excellent resource and reference for persons working in the chemical and related industries, it has sections on all important technologies used by these industries: a one-step source to answer most questions on practical, applied chemistry. Young scientists and engineers just entering the workforce will find it especially useful as a readily available handbook to prepare them for a type of chemistry quite different than they have seen in their traditional coursework, whether graduate or undergraduate.

Chemistry and the Chemical Industry Dec 24 2021 As chemical companies strive to be more competitive in the world economy, it is essential that their employees, including sales and marketing personnel, as well as administrative support groups understand the basic concepts of the science upon which the industry is based. The authors, who have over 100 years of combined experience in the chemical industry, developed this easy-to-read book to provide a fundamental understanding of the chemical industry for non-chemists and those poised to enter the chemical profession. Designed specifically for self-study, Chemistry and the Chemical Industry: A Practical Guide for Non-Chemists reviews the important aspects of industrial chemistry in a way that can be easily understood even if you have not taken any formal chemistry courses. The authors provide a clear, concise presentation of the foremost issues behind the chemical discipline along with key definitions and concepts so you can readily obtain an appreciation of the nature of the industry and its contribution to society. Even though you are not at the lab bench, you can still understand, recognize, and partake in discussions about the work being done at your company. Compiled in a straightforward and accessible manner, this book is unique in that it bridges the gap between nonscientific employees and the scientific world in which they operate. The first chapter begins with a description of the chemical industry. It defines the most common terms used in chemistry, drawing on nonscientific analogies whenever possible. In the following chapters, the authors review the concepts and terminology of organic and inorganic chemistry, polymer chemistry, high volume chemicals, and environmental concerns about chemical production with each subject presented as a graphic representation accompanied by a description. Finally, there is a short compilation of general information sources for further study. Chemistry and the Chemical Industry: A Practical Guide for Non-Chemists will allow you to communicate effectively within your organization and become more familiar with this vital industry.

Biotechnology in the Chemical Industry Sep 20 2021 Biotechnology in the Chemical Industry: Towards a Green and Sustainable Future focuses on achievements and prospects for biotechnology in sustainable production of goods and services, especially those that are derived at present mostly from the traditional chemical industry. It considers the future impact of industrial biotechnology and lays out the major research areas which must be addressed to move from a flourishing set of scientific disciplines to a major contributor to a successful future knowledge-based economy. The book focuses on the research needed to underpin three broad topics: biomass, bio-processes and bio-products, including bio-energy. Readers, including advanced students, researchers, industry professionals, academics, analysts, consultants, and anyone else interested, or involved in biotechnology will find this book very informative. Offers a comprehensive introduction to the subject for researchers interested in the biotechnological applications in chemical industry Provides a state-of-the art update on the field Presents the economic and ecological advantages of industrial biotechnology Discusses efforts made by developing countries towards industrial biotechnology Describes new biotechnological applications Includes the major challenges facing industrial biotechnology

Electrochemical Reactions and Mechanisms in Organic Chemistry Jan 13 2021 Electrochemical reactions make significant contributions to organic synthesis either in the laboratory or on an industrial scale. These methods have the potential for developing more "green" chemical synthesis. Over recent years, modern investigations have clarified the mechanisms of important organic electrochemical reactions. Progress has also been made in controlling the reactivity of intermediates through either radical or ionic pathways. Now is the time to gather all the electrochemical work into a textbook. As an essential addition to the armory of synthetic organic chemists, electrochemical reactions give results not easily achieved by many other chemical routes. This book presents a logical development of reactions and mechanisms in organic electrochemistry at a level suited to research scientists and final year graduate students. It forms an excellent starting point from which synthetic organic chemists, in both academia and industry, can appreciate uses for electrochemical methods in their own work. The book is also a reference guide to the literature.

Organic Chemistry of Sulfur Oct 29 2019 In recent years organic sulfur chemistry has been growing at an even faster pace than the very rapid development in other fields of chemistry. This phenomenal growth is undoubtedly a reflection of industrial and public demands: not only was sulfur recently in overall surplus for the first time in the history of the chemical industry but it has now become a prin cipal environmental hazard in the form of sulfur dioxide, sulfuric acid and hydrogen sulfide. Another reason, discernible in the last fifteen years, has been the desire, on the part of individual chemists and all types of research managers, to move away from the established chemistry of carbon into the less well understood and sometimes virgin chemistries of the other elements which form covalent bonds. As a result of this movement the last decade has seen the development of sulfur chemistry into a well-organized and now much better understood branch of organic chemistry. Enough of the detail has become clear to see mechanistic interrelationships between previously unconnected reactions and with this clarification the whole subject has in tum become systema tized and subdivided. The divalent sulfur chemistry of thiols, monosulfides, disulfides and polysulfides is a large area in itself, much of it devoted to oxidation-reduction and the breakage and formation of sulfur-sulfur bonds, although interesting discoveries are now being made about the reac tivity of certain sulfur-carbon bonds. Of course, this area has its own mas sive biochemical branch involving enzymes and proteins.

Industrial Organic Chemicals Nov 10 2020 Publisher Description

A History of the International Chemical Industry Jul 07 2020 Fred Aftalion's international perspective of the history of chemistry integrates the story of chemical science with that of chemical industry. This new edition includes events from 1990 to 2000, when major companies began selling off their divisions, seeking to specialize in a particular business. Aftalion explores the pitfalls these companies encountered as well as the successes of "contrarians"--those companies that remained broad and diversified. He uses BASF, Dow, and Bayer as examples of true contrarians.

Organic Chemicals in the Environment Jun 05 2020 Addressing the persistent environmental threat of organic chemicals with a fresh approach to degradation and transformation processes, Organic Chemicals in the Environment: Mechanisms of Degradation and Transformation, Second Edition examines a wide range of compounds as well as abiotic and microbiological reactions mediated by microorganisms

Iodine Catalysis in Organic Synthesis May 05 2020 Iodine Catalysis in Organic Synthesis The first book of its kind to highlight iodine as a sustainable alternative to conventional transition metal catalysis Iodine Catalysis in Organic Synthesis provides detailed coverage of recent advances in iodine chemistry and catalysis, focusing on the utilization of various iodine-containing compounds as oxidative catalysts. Featuring contributions by an international panel of leading research chemists, this authoritative volume explores the development of environmentally benign organic reactions and summarizes catalytic transformations of molecular iodine and iodine compounds such as hypervalent organoiodine and inorganic iodine salts. Readers are first introduced to the history of iodine chemistry, the conceptual background of homogeneous catalysis, and the benefits of iodine catalysis in comparison with transition metals. Next, chapters organized by reaction type examine enantioselective transformations, catalytic reactions involving iodine, catalyst states, oxidation in iodine and iodine catalyses, and catalytic reactions based on halogen bonding. Practical case studies and real-world examples of different applications in organic synthesis and industry are incorporated throughout the text. An invaluable guide for synthetic chemists in both academic and industrial laboratories, Iodine Catalysis in Organic Synthesis: Provides a thorough overview of typical iodine-catalyzed reactions, catalyst systems, structures, and reactivity Explores promising industrial applications of iodine-based reagents for organic synthesis Highlights the advantages iodine catalysis has over classical metal-catalyzed reactions Discusses sustainable and eco-friendly methods in hypervalent iodine chemistry Edited by two world authorities on the catalytic applications of organoiodine compounds, Iodine Catalysis in Organic Synthesis is required reading for catalytic, organic, and organometallic chemists, medicinal and pharmaceutical chemists, industrial chemists, and academic researchers and advanced students in relevant fields.

Practical Process Research and Development – A guide for Organic Chemists Jan 31 2020 Designed to provide a comprehensive, step-by-step approach to organic process research and development in the pharmaceutical, fine chemical, and agricultural chemical industries, this book describes the steps taken, following synthesis and evaluation, to bring key compounds to market in a cost-effective manner. It describes hands-on, step-by-step, approaches to solving process development problems, including route, reagent, and solvent selection; optimising catalytic reactions; chiral syntheses; and "green chemistry." Second Edition highlights: • Reflects the current thinking in chemical process R&D for small molecules • Retains similar structure and orientation to the first edition. • Contains approx. 85% new material • Primarily new examples (work-up and prospective considerations for pilot plant and manufacturing scale-up) • Some new/expanded topics (e.g. green chemistry, genotoxins, enzymatic processes) • Replaces the first edition, although the first edition contains useful older examples that readers may refer to Provides insights into generating rugged, practical, cost-effective processes for the chemical preparation of "small molecules" Breaks down process optimization into route, reagent and solvent selection, development of reaction conditions, workup, crystallizations and more Presents guidelines for implementing and troubleshooting processes

Metal-catalysis in Industrial Organic Processes Sep 28 2019 Catalysis underpins most modern industrial organic processes. It has become an essential tool in creating a 'greener' chemical industry by replacing more traditional stoichiometric reactions, which have high energy consumption and high waste production, with mild processes which increasingly resemble Nature's enzymes. Metal-Catalysis in Industrial Organic Processes considers the major areas of the field and discusses the logic of using catalysis in industrial processes. This popular book, now available as softback, provides information on oxidation, hydrogenation, carbonylation, C-C bond formation, metathesis and polymerization processes, as well as on the mechanisms involved. In addition two appendices offer a concise treatment of homogeneous and heterogenous catalysis. Numerous exercises referring to problems of catalytic processes, and research perspectives complete the book. This definitive reference source, written by practising experts in the field, provides detailed and up-to-date information on key aspects of metal catalysis.

Purification of Laboratory Chemicals Mar 03 2020 Now in its fifth edition, the book has been updated to include more detailed descriptions of new or more commonly used techniques since the last edition as well as remove those that are no longer used, procedures which have been developed recently, ionization constants (pKa values) and also more detail about the trivial names of compounds. In addition to having two general chapters on purification procedures, this book provides details of the physical properties and purification procedures, taken from literature, of a very extensive number of organic, inorganic and biochemical compounds which are commercially available. This is the only complete source that covers the purification of laboratory chemicals that are commercially available in this manner and format. * Complete update of this valuable, well-known reference * Provides purification procedures of commercially available chemicals and biochemicals * Includes an extremely useful compilation of ionisation constants

Industrial Organic Chemistry Apr 27 2022 Industrial Organic Chemistry examines all major industrial manufacturing technologies and reaction types with a focus on organic chemistry in general and petroleum refining in particular. The author takes a systematic approach to introducing the most important classes of organic compounds, from the C1 fraction through to polyaromatics and polymers. The author introduces biological sources for key compounds such as fuel and plastics and compares these bio-based organic materials to the corresponding petroleum-based chemicals. In addition to the chemistry behind processes in the petroleum, pharma, food and agrochemical industries, this book also discusses related topics such as process selectivity, waste management, and product purification.

The Organic Chemistry of Drug Design and Drug Action Jun 25 2019 Standard medicinal chemistry courses and texts are organized by classes of drugs with an emphasis on descriptions of their biological and pharmacological effects. This book represents a new approach based on physical organic chemical principles and reaction mechanisms that allow the reader to extrapolate to many related classes of drug molecules. The Second Edition reflects the significant changes in the drug industry over the past decade, and includes chapter problems and other elements that make the book more useful for course instruction. New edition includes new chapter problems and exercises to help students learn, plus extensive references and illustrations Clearly presents an organic chemist's perspective of how drugs are designed and function, incorporating the extensive changes in the drug industry over the past ten years Well-respected author has published over 200 articles, earned 21 patents, and invented a drug that is under consideration for commercialization

Metal-Organic Frameworks for Chemical Reactions Jul 27 2019 Metal-Organic Frameworks for Chemical Reactions: From Organic Transformations to Energy Applications brings together the latest information on MOFs materials, covering recent technology in the field of manufacturing and design. The book covers different aspects of reactions from energy storage and catalysts, including preparation, design and characterization techniques of MOFs material and applications. This comprehensive resource is ideal for researchers and advanced students studying metal-organic frameworks in academia and industry. Metal-organic frameworks (MOFs) are nanoporous polymers made up of inorganic metal focuses connected by natural ligands. These entities have become a hot area of research because of their exceptional physical and chemical properties that make them useful in di?erent ?elds, including medicine, energy and the environment. Since combination conditions strongly a?ect the properties of these compounds, it is especially important to choose an appropriate synthetic technique that produces a product with homogenous morphology, small size dispersion, and high thermal stability. Covers the synthetic advantages and versatile applications of metal-organic frameworks (MOFs) due to their organic-inorganic hybrid nature and unique porous structure Includes energy applications such as batteries, fuel storage, fuel cells, hydrogen evaluation reactions and super capacitors Features information on using MOFs as a replacement to conventional engineering materials because they are lightweight, less costly, environmentally-friendly and sustainable

Industrial Organic Chemicals in Perspective, Raw Materials and Manufacture May 29 2022 The first text to organize industrial organic chemistry as a discipline, bridging the gap between academic organic chemistry and real life. Part 1 shows the place of the chemical industry in a modern economy, describing how industrial chemists make a host of organic chemicals from a small number of feedstocks—petroleum, natural gas, and a few agricultural products. Reviews the chemistry of polymer

manufacture, and outlines the new organic chemistry based on exotic catalysts. Ends with an examination of the future of the chemical industry.

Industrial Organic Chemicals Jun 17 2021 The Encyclopedia of Industrial Organic Chemicals brings together around 200 detailed and thoroughly edited articles on organic starting materials and intermediates. Based on the very latest edition of Ullmann's Encyclopedia of Industrial Chemistry, the contents represent the most up-to-date source of information available. The 8 volumes of alphabetically arranged articles provide coverage of the manufacturing of chemicals, the design of processes, the operation of chemical plants, and the markets of the products. Internationally respected authors, from industry and academia and from the world's major industrialized countries, provide a complete picture for each chemical. The typical pattern of an article is as follows: - Introduction - Properties - Chemical reactions - Production - Legal aspects - Quality and analysis - Uses - Economic aspects - Toxicology and occupational health - References A keyword index, an author index and a CAS-registry-number index complete the contents of this encyclopedia. Top-quality illustrations, clear diagrams and charts, and the extensive use of tables enhance presentation and provide a unique level of detail. The encyclopedia will be an invaluable source of information for chemists, chemical engineers, patent attorneys, marketing specialists and all those involved in today's chemical industry.

Green Organic Chemistry and its Interdisciplinary Applications Nov 22 2021 Green Organic Chemistry and Its Interdisciplinary Applications covers key developments in green chemistry and demonstrates to students that the developments were most often the result of innovative thinking. Using a set of selected experiments, all of which have been performed in the laboratory with undergraduate students, it demonstrates how to optimize and develop green experiments. The book dedicates each chapter to individual applications, such as Engineering The chemical industry The pharmaceutical industry Analytical chemistry Environmental chemistry Each chapter also poses questions at the end, with the answers included. By focusing on both the interdisciplinary applications of green chemistry and the innovative thinking that has produced new developments in the field, this book manages to present two key messages in a manner where they reinforce each other. It provides a single and concise reference for chemists, instructors, and students for learning about green organic chemistry and its great and ever-expanding number of applications.

Industrial Organic Chemistry Sep 01 2022 'Ideal for getting an overview of applied organic chemistry' This bestselling standard, now in its 3rd completely revised English edition, is an excellent source of technological and economic information on the most important precursors and intermediates used in the chemical industry. Right and left columns containing synopsis of the main text and statistical data, and numerous fold-out flow diagrams ensure optimal didactic presentation of complex chemical processes. The translation into eight languages, the four German and three English editions clearly evidence the popularity of this book. '... it is where I look first to get a quick overview of the manufacturing process of a product... Weissermel/Arpe has been serving me for years as an indispensable reference work.' (Berichte der Bunsengesellschaft für Physikalische Chemie) 'Whether student or scientist, theorist or practician - everyboby interested in industrial organic chemistry will appreciate this work.' (farbe + lack) '...it should be ready to hand to every chemist or process engineer envolved directly or indirectly with industrial organic chemistry . It should be in the hand of every higher-graduate student, especially if chemical technology is not part of the study, like in many college universities...' (Tenside-Surfactants-Detergents)

Separation Technologies for the Industries of the Future May 17 2021 Separation processesâ€"or processes that use physical, chemical, or electrical forces to isolate or concentrate selected constituents of a mixtureâ€"are essential to the chemical, petroleum refining, and materials processing industries. In this volume, an expert panel reviews the separation process needs of seven industries and identifies technologies that hold promise for meeting these needs, as well as key technologies that could enable separations. In addition, the book recommends criteria for the selection of separations research projects for the Department of Energy's Office of Industrial Technology.

The American Synthetic Organic Chemicals Industry Oct 02 2022 American Synthetic Organic Chemicals Industry: War and Politics, 1910-1930

Organic Chemistry in Colour Jul 19 2021 The foundations of the chemical dyestuffs industry were laid in 1856 when W. H. Perkin discovered the dye Mauveine. At approximately the same time modern chemistry was establishing itself as a major science. Thus, the chemistry of dyes became that branch of organic chemistry in which the early scientific theories were first used. This early eminence has now been largely lost. In fact, many of our academic and teaching institutions pay little attention to this vitally important branch of organic chemistry. We believe that this book will help to rectify this unfortunate situation. The majority of books that have been published on the subject of dyes have been technologically biased and, in our opinion, do not appeal to the mainstream organic chemist. We have, therefore, aimed at producing a book which emphasises the role of organic chemistry in dyestuffs and we have included appropriate modern theories, especially the modern molecular orbital approaches. We have assumed that the reader possesses a knowledge of the basic principles of organic chemistry;* the only other requirement is a general interest in organic chemistry.** The book should interest the newcomer to chemistry, the established academic, and the dyestuffs chemist himself.

Advanced Practical Organic Chemistry, Second Edition Oct 22 2021 The first edition of this book achieved considerable success due to its ease of use and practical approach, and to the clear writing style of the authors. The preparation of organic compounds is still central to many disciplines, from the most applied to the highly academic and, more tan ever is not limited to chemists. With an emphasis on the most up-to-date techniques commonly used in organic syntheses, this book draws on the extensive experience of the authors and their association with some of the world's mleading laboratories of synthetic organic chemistry. In this new edition, all the figures have been re-drawn to bring them up to the highest possible standard, and the text has been revised to bring it up to date. Written primarily for postgraduate, advanced undergraduate and industrial organic chemists, particularly those involved in pharmaceutical, agrochemical and other areas of fine chemical research, the book is also a source of reference for biochemists, biologists, genetic engineers, material scientists and polymer researchers.

Nanofiltration, 2 Volume Set Apr 15 2021 An updated guide to the growing field of nanofiltration including fundamental principles, important industrial applications as well as novel materials With contributions from an international panel of experts, the revised second edition of Nanofiltration contains a comprehensive overview of this growing field. The book covers the basic principles of nanofiltration including the design and characterizations of nanofiltration membranes. The expert contributors highlight the broad ranges of industrial applications including water treatment, food, pulp and paper, and textiles. The book explores photocatalytic nanofiltration reactors, organic solvent nanofiltration, as well as nanofiltration in metal and acid recovery. In addition, information on the most recent developments in the field are examined including nanofiltration retentate treatment and renewable energy-powered nanofiltration. The authors also consider the future of nanofiltration materials such as carbon- as well as polymer-based materials. This important book: Explores the fast growing field of the membrane process of nanofiltration Examines the rapidly expanding industrial sector's use of membranes for water purification Covers the most important industrial applications with a strong focus on water treatment Contains a section on new membrane materials, including carbon-based and polymer-based materials, as well as information on artificial ion and water channels as biomimetic membranes Written for scientists and engineers in the fields of chemistry, environment, food and materials, the second edition of Nanofiltration provides a comprehensive overview of the field, outlines the principles of the technology, explores the industrial applications, and discusses new materials.

Riegel's Handbook of Industrial Chemistry Nov 30 2019 The aim of this book is to present in a single volume an up-to-date account of the chemistry and chemical engineering which underlie the major areas of the chemical process industry. This most recent edition includes several new chapters which comprise important threads in the industry's total fabric. These new chapters cover waste minimization, safety considerations in chemical plant design and operation, emergency response planning, and statistical applications in quality control and experimental planning. Together with the chapters on chemical industry economics and wastewater treatment~ they provide a unifying base on which the reader can most effectively apply the information provided in the chapters which describe the various areas of the chemical process industries. The ninth edition of this established reference work contains the contributions of some fifty experts from industry, government, and academe. I have been humbled by the breadth and depth of their knowledge and expertise and by the willingness and enthusiasm with which they shared their knowledge and insights. They have, without exception, been unstinting in their efforts to make their respective chapters as complete and informative as possible within the space available. Errors of omission, duplication, and shortcomings in organization are mine. Grateful acknowledgment is made to the editors of technical journals and publishing houses for permission to reproduce illustrations and other materials and to the many industrial concerns which contributed drawings and photographs. Comments and criticisms by readers will be welcome.

Crystallization of Organic Compounds Mar 15 2021 Filled with industrial examples emphasizing the practical applications of crystallization methodologies Based on the authors' hands-on experiences as process engineers at Merck, Crystallization of Organic Compounds guides readers through the practical aspects of crystallization. It uses plenty of case studies and examples of crystallization processes, ranging from development through manufacturing scale-up. The book not only emphasizes strategies that have been proven successful, it also helps readers avoid common pitfalls that can render standard procedures unsuccessful. The goal of this text is twofold: Build a deeper understanding of the fundamental properties of crystallization as well as the impact of these properties on crystallization process development. Improve readers' problem-solving abilities by using actual industrial examples with real process constraints. Crystallization of Organic Compounds begins with detailed discussions of fundamental thermodynamic properties, nucleation and crystal growth kinetics, process dynamics, and scale-up considerations. Next, it investigates modes of operation, including cooling, evaporation, anti-solvent, and reactive crystallization. The authors conclude with special applications such as ultrasound in crystallization and computational fluid dynamics in crystallization. Most chapters feature multiple examples that guide readers step by step through the crystallization of active pharmaceutical ingredients (APIs). With its focus on industrial applications, this book is recommended for chemical engineers and chemists who are involved with the development, scale-up, or operation of crystallization processes in the pharmaceutical and fine chemical industries.

Organic Building Blocks of the Chemical Industry Jul 31 2022 A comprehensive survey of industrial organic chemicals, their useful properties, and the economic rationale for the dominant synthetic pathways. This practical guide explains where these organic building blocks of the chemical industry come from, how to make them on a commercial scale, how to price them, and how to analyze trends in demand and production of any given material. Coverage ranges from how and why different processes originated to the latest developments in high-value-added specialty chemicals.

The American Synthetic Organic Chemicals Industry Jan 25 2022 Prior to 1914, Germany dominated the worldwide production of synthetic organic dyes and pharmaceuticals like aspirin. When World War I disrupted the supply of German chemicals to the United States, American entrepreneurs responded to the shortages and high prices by trying to manufacture chemicals domestically. Learning the complex science and industry, however, posed a serious challenge. This book explains how the United States built a synthetic organic chemicals industry in World War I and the 1920s. Kathryn Steen argues that Americans' intense anti-German sentiment in World War I helped to forge a concentrated effort among firms, the federal government, and universities to make the United States independent of "foreign chemicals." Besides mobilization efforts to make high explosives and war gases, federal policies included protective tariffs, gathering and publishing market information, and, most dramatically, confiscation of German-owned chemical subsidiaries and patents. Meanwhile, firms and universities worked hard to develop scientific and manufacturing expertise. Against a backdrop of hostilities and intrigue, Steen shows how chemicals were deeply entwined with national and international politics and policy during the war and subsequent isolationism of the turbulent early twentieth century.

Organic Chemicals From Biomass Aug 08 2020 The biomass emphasis in on material of terrestrial plant origin, although principles are directly transferable to aquatic plants with similar components. Products of animal origin are not included. Since animal fats and oils are not considered, it seemed logical to exclude vegetable oils as well. Biomass emphasis is on material of terrestrial plant origin, although the principles are directly transferrable to aquatic plants with similar components.

Industrial Environmental Performance Metrics Aug 20 2021 Industrial Environmental Performance Metrics is a corporate-focused analysis that brings clarity and practicality to the complex issues of environmental metrics in industry. The book examines the metrics implications to businesses as their responsibilities expand beyond the factory gateâ€"upstream to suppliers and downstream to products and services. It examines implications that arise from greater demand for comparability of metrics among businesses by the investment community and environmental interest groups. The controversy over what sustainable development means for businesses is also addressed. Industrial Environmental Performance Metrics identifies the most useful metrics based on case studies from four industriesâ€"automotive, chemical, electronics, and pulp and paperâ€"and includes specific corporate examples. It contains goals and recommendations for public and private sector players interested in encouraging the broader use of metrics to improve industrial environmental performance and those interested in addressing the tough issues of prioritization, weighting of metrics for meaningful comparability, and the longer term metrics needs presented by sustainable development.

Air Pollution Sep 08 2020 Whether considered a threat to the health of humans in particular or of the ecosystem in general, the problem of air pollution affects us all. In addition to the 189 chemicals listed in the air toxins category of the 1990 Clean Air Act Amendments, smog, acid rain, ozone depletion, and global warming all arise from air pollution. You can debate the prime causes óacid rain, excessive lumbering or changes in the weather ó but the diminishing rainforest and the spreading desert speak for themselves. Air Pollution addresses the sources and results of these problems, and how they influence the environment. It surveys all aspects of management, including dispersion modeling, emission measurements, air quality and continuous emission monitoring, remote sensing, and stack sampling. In addition, the book explores methods of reduction and control, with particular attention to gaseous emission controls and odor control. This stellar resource addresses the prevention of pollution created by existing technology, and the design of future zero-emissions technology. A useful guide for engineers, students or anyone working for environmental protection, Air Pollution provides a solid foundation and presents a sound environmental philosophy. Béla G. Lipták speaks on Post-Oil Energy Technology on the AT&T Tech Channel.

Handbook of Industrial Chemistry and Biotechnology Feb 11 2021 Substantially revising and updating the classic reference in the field, this handbook offers a valuable overview and myriad details on current chemical processes, products, and practices. No other source offers as much data on the chemistry, engineering, economics, and infrastructure of the industry. The Handbook serves a spectrum of individuals, from those who are directly involved in the chemical industry to others in related industries and activities. It provides not only the underlying science and technology for important industry sectors, but also broad coverage of critical supporting topics. Industrial processes and products can be much enhanced through observing the tenets and applying the methodologies found in chapters on Green Engineering and Chemistry (specifically, biomass conversion), Practical Catalysis, and Environmental Measurements; as well as expanded treatment of Safety, chemistry plant security, and Emergency Preparedness. Understanding these factors allows them to be part of the total process and helps achieve optimum results in, for example, process development, review, and modification. Important topics in the energy field, namely nuclear, coal, natural gas, and petroleum, are covered in individual chapters. Other new chapters include energy conversion, energy storage, emerging nanoscience and technology. Updated sections include more material on biomass conversion, as well as three chapters covering biotechnology topics, namely, Industrial Biotechnology, Industrial Enzymes, and Industrial Production of Therapeutic Proteins.

Handbook of Industrial Chemistry Jun 29 2022 The definitive guide for the general chemical analyses of non-petroleum based organic products such as paints, dyes, oils, fats, and waxes. * Chemical tables, formulas, and equations * Covers all of the chemical processes which utilize organic chemicals * Physical properties for the most common organic chemicals Contents: Safety Considerations in Process Industries * Industrial Pollution Prevention and Waste Management * Edible Oils, Fats, and Waxes * Soaps and Detergents * Sugar and Other Sweeteners * Paints, Pigments, and Industrial Coatings * Dyestuffs, Finishing and Dyeing of Textiles * Industrial Fermentation * Pharmaceutical Industry *Agrochemicals * Chemical Explosives * Petroleum Processing and Petrochemicals *Polymers and Plastics

Green Organic Chemistry in Lecture and Laboratory Oct 10 2020 The last decade has seen a huge interest in green organic chemistry, particularly as chemical educators look to "green" their undergraduate curricula. Detailing published laboratory experiments and proven case studies, this book discusses concrete examples of green organic chemistry teaching approaches from both lecture/seminar and practical perspe

Environmental Inorganic Chemistry for Engineers Feb 23 2022 Environmental Inorganic Chemistry for Engineers explains the principles of inorganic contaminant behavior, also applying these principles to explore available remediation technologies, and providing the design, operation, and advantages or disadvantages of the various remediation technologies. Written for environmental engineers and researchers, this reference provides the tools and methods that are imperative to protect and improve the environment. The book's three-part treatment starts with a clear and rigorous exposition of metals, including topics such as preparations, structures and bonding, reactions and properties, and complex formation and sequestering. This coverage is followed by a self-contained section concerning complex formation, sequestering, and organometallics, including hydrides and carbonyls. Part Two, Non-Metals, provides an overview of chemical periodicity and the fundamentals of their structure and properties. Clearly explains the principles of inorganic contaminant behavior in order to explore available remediation technologies Provides the design, operation, and advantages or disadvantages of the various remediation technologies Presents a clear exposition of metals, including topics such as preparations, structures, and bonding, reaction and properties, and complex formation and sequestering

Survey of Industrial Chemistry Dec 12 2020 Survey of Industrial Chemistry arose from a need for a basic text dealing with industrial chemistry for use in a one semester, three-credit senior level course taught at the University of Wisconsin-Eau Claire. This edition covers all important areas of the chemical industry, yet it is reasonable that it can be covered in 40 hours of lecture. Also an excellent resource and reference for persons working in the chemical and related industries, it has sections on all important technologies used by these industries: a one-step source to answer most questions on practical, applied chemistry. Young scientists and engineers just entering the workforce will find it especially useful as a readily available handbook to prepare them for a type of chemistry quite different than they have seen in their traditional coursework, whether graduate or undergraduate.

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